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10/582,780

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Thomas Craven-Bartle

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EXAMINER

RAINEY, ROBERT R

ART UNIT

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2629

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PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/582,780	Applicant(s) CRAVEN-BARTLE ET AL.	
	Examiner ROBERT R. RAINEY	Art Unit 2629	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 16 July 2009.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 29,31-38,42-48 and 51-54 is/are pending in the application.
- 4a) Of the above claim(s) 34-37 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 29,31-33,38,42-48 and 51-54 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 13 June 2006 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☒ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Response to Arguments

1. Applicant's arguments with respect to claims 29, 31-33, 38, 42-48 and 51-54 have been considered but are moot in view of the new ground(s) of rejection.

Claim Objections

2. Claim 43 objected to because of the following informalities: Claim 43 repeats a limitation already in its parent claim, claim 42, "further comprising an electrical connection between the radiation source and the printed circuit board". Examiner assumes this was simply overlooked when the dependency of claim 43 was changed. Appropriate correction is required.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. **Claims 29, 31-33, 51 and 52** are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 5,852,434 to *Sekendur* ("*Sekendur*") in view of U.S. Patent No. 7,098,894 to *Yang et al.* ("*Yang*") and further in view of WIPO Publication Number WO 03/001358 A1 to *Fermgard et al.* ("*Fermgard*").

As to **claim 29** *Sekendur* discloses a writing instrument with optical input and in particular: A sensor boresight unit for transmitting radiation from an object to a radiation sensor, said sensor boresight unit comprising: a housing, having an internal channel ... within said housing, said housing having a radiation entrance end (see for example Fig. 7 item 12) and a radiation exit end of said channel (see for example Fig. 7 item 20), a lens (see for example Fig. 7 item 12) mounted in the internal channel at said radiation entrance end of said housing.

Sekendur does not expressly disclose an optical imaging system with an internal channel that changes direction at a turn within said housing, a mirror mounted in said housing at said turn of the internal channel for redirecting radiation along the change of direction of the internal channel, and a holder for receiving a radiation source, said holder being associated with an outer part of the housing.

Yang teaches an optical input device and discloses an optical imaging system with an internal channel that changes direction at a turn within said housing (see for example Fig. 5), and a mirror (see for example Fig. 5 item 13b), which is mounted in the housing at said turn of the internal channel for redirecting radiation along the change of direction of the internal channel.

Sekendur and *Yang* are analogous art because they are from the same field of endeavor, which is optical input devices.

At the time of invention, it would have been obvious to a person of ordinary skill in the art to use the optical arrangement of *Yang* to replace the optical arrangement of *Sekendur*. The suggestion/motivation would have been to provide a device that is slim and able to be grasped by the hand (see for example *Yang* 4:60-65).

Sekendur and *Yang* does not expressly disclose a holder for receiving a radiation source, said holder being associated with an outer part of the housing.

Fermgard discloses an electronic pen and mounting part therefor and in particular:

the use of a unitary structure, or in other words a housing, to align and hold the sensing optics and a radiation source, including

a holder for receiving the radiation source (see for example Fig. 5 item 21), said holder being associated with an outer part of the housing (the holder is associated with an outer part of the housing in at least two senses; first the holder is not inside the cavity that aligns the sensing optics, second the holder is defined by a surface that is a boundary between what is and is not part of the housing).

Sekendur and *Yang* and *Fermgard* are analogous art because they are from the same field of endeavor, which is optical input devices.

At the time of invention, it would have been obvious to a person of ordinary skill in the art to improve the device of *Sekendur* and *Yang* by using a unitary structure including a holder for receiving the radiation source, said holder

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being associated with an outer part of the housing as taught by *Fermgard*. The suggestion/motivation would have been to minimize the tolerance chain between components (see for example *Fermgard* abstract).

As to **claim 31**, in addition to the rejection of claim 29 over *Sekendur* and *Yang*, *Yang* further discloses that said lens defines an image plane at said radiation exit end (see for example Fig. 5 noting the lines indicating the transfer of a point in the object plane to a point in the image plane)

Examiner takes official notice that aperture stops placed at various points in the optical path to prevent unwanted light from reaching the image plane were well known to those skilled in the art at the time of the invention.

Thus the addition of a barrier in said channel to screen said image plane from said radiation entrance end would have been obvious to one of ordinary skill in the art. Whether this barrier is part of the housing or a separate piece mounted in the housing does not affect patentability at least as presently claimed.

As to **claim 32**, in addition to the rejection of claim 31 over *Sekendur* and *Yang*, the barrier as taught in the art cited in claim 31 also represents a radiation trap since the radiation impinging upon it will be partially absorbed and partially reflected, and the reflected portion will then be subject to further partial absorption / partial reflection events at for example the channel-defining wall, which now become radiation traps guiding the undesired radiation away from the

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sensor. Thus the combination discloses that said housing defines at least one radiation trap in a channel-defining wall portion between said barrier and said radiation entrance end. In order to further prosecution, examiner notes that there are many types of radiation traps including absorptive coatings as well as redirection of radiation as seen for example in U.S. Patent No. 3,735,142 to Harr et al. (6:58-7:2). Applicant is encouraged to claim the details of the type of trap invented.

Claim 33 is rejected on the same grounds and arguments as claim 31 since that rejection covered the teaching that the housing defines an aperture stop in said channel.

As to **claim 51**, in addition to the rejection of claim 29 over *Sekendur*, *Yang* and *Fermgard*, *Fermgard* further discloses that the holder is integrated with the outer part of the housing (see for example Fig. 5).

As to **claim 52**, in addition to the rejection of claim 29 over *Sekendur*, *Yang* and *Fermgard*, *Fermgard* further discloses that the holder is attached to the outer part of the housing (see for example Fig. 5).

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5. **Claims 38, 42-48, 53 and 54** are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 5,852,434 to *Sekendur* ("*Sekendur*") in view of WIPO Publication Number WO 03/001358 A1 to *Fermgard et al.* ("*Fermgard*").

As to **claim 38** *Sekendur* discloses a writing instrument with optical input and in particular: a modular unit for an electronic pen having a writing implement (see for example Fig. 7 item 19), said modular unit comprising:

a carrier with a receiver for the writing implement (see for example Fig. 7, the carrier is not made explicit but is a necessary part since without something to position the components they would not stay in place, also without a receiver the writing implement would fall out),

a printed circuit board,

a two-dimensional radiation sensor mounted on the printed circuit board (see for example Fig. 7 item 14 and 6:37-38),

an imaging unit designed to control the spatial origin of radiation reaching the radiation sensor (see for example Fig. 7, note that at least the lenses, items 12 and 20, and the housing around the radiation sensor control the spatial origin of radiation transmitted towards the radiation sensor), the imaging unit defining an image plane (see for example Fig. 7 at least items 12 and 20 which are described at 6:30-35 as lenses) and an object plane (see for example Fig. 7, the object plane is implicitly indicated to be approximately parallel to opening 12 and coincident with stylus tip 9), and

a radiation source for illuminating an object plane defined by the imaging unit (see for example Fig. 7 item 17),

wherein the carrier, the printed circuit board, and the imaging unit are joined together with the imaging unit facing the radiation sensor to locate the image plane at the radiation sensor (see for example Fig. 7, both items 12 and 20 are described at 6:30-35 as lenses, one skilled in the art would recognize that these are designed to transfer the images from the sensed object as shown in Fig. 1-5 to an image plane at the radiation sensor).

Sekendur does not expressly disclose

the imaging unit having a body and a holder that is associated with an outer part of the body, and

the radiation source being held by the holder of the imaging unit.

Fermgard discloses an electronic pen and mounting part therefor and in particular:

the use of a unitary structure, or in other words a housing, to align and hold the sensing optics and a radiation source, including

the imaging unit having a body and a holder that is associated with an outer part of the body (see for example Fig. 5 item 21; the holder is associated with an outer part of the body in at least two senses; first the holder is not inside the cavity that aligns the sensing optics, second the holder is defined by a surface that is a boundary between what is and is not part of the body), and

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the radiation source being held by the holder of the imaging unit (see for example Fig. 2 item 20).

Sekendur and *Fermgard* are analogous art because they are from the same field of endeavor, which is optical input devices.

At the time of invention, it would have been obvious to a person of ordinary skill in the art to improve the device of *Sekendur* by using a unitary structure including a holder for receiving the radiation source, said holder being associated with an outer part of the housing as taught by *Fermgard*. The suggestion/motivation would have been to minimize the tolerance chain between components (see for example *Fermgard* abstract).

As to **claim 42**, in addition to the rejection of claim 38 over *Sekendur* and *Fermgard*, *Sekendur* further discloses an electrical connection between the radiation source and the printed circuit board (see for example Fig. 7 especially the connection lines between the radiation source 17 and the PCB 14 and 6:37-38).

As to **claim 43**, in addition to the rejection of claim 42 over *Sekendur* and *Fermgard*:

Examiner takes official notice that the use of the electrical leads to clamp an assembly to a printed circuit board was well known in the art at the time of the invention. As evidence for this see for example U.S. Patent No. 3,649,939 to

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Hildebrandt Fig. 1-5, which shows a module comprised of a coil and holder with the leads of the coil clamping the module to a printed circuit board, or U.S. Patent No. 4,962,364 to *Okuya et al.* Fig. 1-2, which shows a more complex module with leads, "A", that supply power to an LED, formed to clamp the module to a printed circuit board.

At the time of invention, it would have been obvious to a person of ordinary skill in the art to use the known technique of using electrical leads, including the leads powering the radiation source, to clamp the holder as described in the rejections of the parent claims to the printed circuit board, since this improvement was known to have improved similar devices, that is modules attached to printed circuit boards.

The suggestion/motivation would have been to improve position retention or to reduce additional steps during manufacturing by a known technique (see for example *Hildebrandt* 1:10-60).

Thus it would have been obvious to one of ordinary skill in the art at the time of the invention to provide an electrical connection between the radiation source and the printed circuit board, wherein the electrical connection exerts a clamping force between the imaging unit and the printed circuit board.

As to **claim 44**, in addition to the rejection of claim 38 over *Sekendur* and *Fermgard*, *Sekendur* further discloses that the printed circuit board is supported by the carrier (the writing implement and the printed circuit board are maintained

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in a spatial relationship at least such that the printed circuit board is not separated from the device, whatever maintains this relationship causes them to move together thus the carrier supports the printed circuit board).

As to **claim 45**, in addition to the rejection of claim 38 over *Sekendur* and *Fermgard*, *Sekendur* further discloses that the printed circuit board is attached to the carrier (the writing implement and the printed circuit board are maintained in a spatial relationship, the printed circuit board must stay with the device in order for the device to work thus printed circuit board is attached to the carrier).

As to **claim 46**, in addition to the rejection of claim 38 over *Sekendur* and *Fermgard*, *Sekendur* further discloses that the imaging unit is supported by the printed circuit board (the imaging unit and the printed circuit board are maintained in a spatial relationship at least such that the printed circuit board is not separated from the device, whatever maintains this relationship causes them to move together thus the imaging unit is supported by printed circuit board).

As to **claim 47**, in addition to the rejection of claim 38 over *Sekendur* and *Fermgard*, *Sekendur* further discloses that the imaging unit is attached to the printed circuit board (the imaging unit and the printed circuit board are maintained in a spatial relationship, the printed circuit board must stay with the

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device in order for the device to work thus the imaging unit is attached to the printed circuit board).

As to **claim 48**, in addition to the rejection of claim 38 over *Sekendur* and *Fermgard*, *Sekendur* further discloses the modular unit comprising at least one connector for attaching at least part of an outer casing of said electronic pen (see for example Fig. 7 at least the line between item 24 and the rest of the device, the component is connected, which implies a connector).

As to **claim 53**, in addition to the rejection of claim 38 over *Sekendur* and *Fermgard*, *Fermgard* further discloses that the holder is integrated with the outer part of the body (see for example Fig. 5).

As to **claim 54**, in addition to the rejection of claim 38 over *Sekendur* and *Fermgard*, *Fermgard* further discloses that the holder is attached to the outer part of the body (see for example Fig. 5).

Conclusion

6. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

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A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to ROBERT R. RAINEY whose telephone number is (571)270-3313. The examiner can normally be reached on Monday through Friday 8:30 AM to 5:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Amare Mengistu can be reached on (571) 272-7674. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/RR/

/Amare Mengistu/
Supervisory Patent Examiner, Art Unit 2629